

# SEQUENCE LISTING

<110> Biotechnologisk Institut

<120> Mucor Recombinant Gene Expression

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<170> PatentIn Ver. 2.1

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Ile Pro His Asn Lys Arg Val Ala Ile Lys Val Ile Asp Leu Asp Met  
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Val Leu His  
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Glu Pro Lys Ile Cys Asp Phe Gly Leu Ala Arg Gly Tyr Ser Glu Asn  
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Asn Asp Leu Phe Phe Ile Thr Gly Thr Asp Ile Val Arg Ser Leu Thr  
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Phe Arg Phe His Ala Phe Gly Arg Pro Val Thr Asn Ala Lys Lys Phe  
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Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Pro Gly His Asp  
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Asn Glu Ser Thr Thr Thr Pro Thr Thr Met Gln Leu Pro Ala Ser Glu  
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Thr Ile Ala Asp Ala Arg Lys Ala Asp Thr Tyr Cys Ile Val His Tyr  
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 Thr Gly Asp Val Arg Leu Gln Val Thr Phe Ile Asp Pro Lys Lys  
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gtaattttat atgagtatga ttcttgacag ctgatgtctg acacttctaa aacctatttc 1367

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 Ala Asn Leu Lys Pro Glu Asp Phe Arg Ile Val Arg Met Ile Gly  
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caa ggc tca gtg ggt aag gtg tat gag gtg atc aag cgt gat tct ggc 1463  
 Gln Gly Ser Val Gly Lys Val Tyr Glu Val Ile Lys Arg Asp Ser Gly  
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cgt acc tat gcc atg aag gtg ctc tct aag cgt ctc ttg ctc gcc gag 1511  
 Arg Thr Tyr Ala Met Lys Val Leu Ser Lys Arg Leu Leu Leu Ala Glu  
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 Asn Glu Val Asp Thr Ala Phe Asn Glu Arg Asn Val Leu Val Gln Ser  
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 Leu Ser Ser Pro Phe Ile Ala Asn Leu Lys Tyr Ser Phe Gln Thr Thr  
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aac cat ctc ttc ttg gtt atg gat tac ttt ccg ggt ggc gaa ttg ttt 1655  
 Asn His Leu Phe Leu Val Met Asp Tyr Phe Pro Gly Gly Glu Leu Phe  
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gat ttc ctg gag cgt gag cgt tgt ttg agc gag aag cgt tgc caa ttc	1703
Asp Phe Leu Glu Arg Glu Arg Cys Leu Ser Glu Lys Arg Cys Gln Phe	
335 340 345 350	
ttt gct gcc gag att gtg tgt gcc ttt gac aac atc cat gct cgc aac	1751
Phe Ala Ala Glu Ile Val Cys Ala Phe Asp Asn Ile His Ala Arg Asn	
355 360 365	
att gtc tat cgt aac ctg aag cca gag agc atc ttg ctg gat gca cat	1799
Ile Val Tyr Arg Asn Leu Lys Pro Glu Ser Ile Leu Leu Asp Ala His	
370 375 380	
gga cac att gcc ttg aca gat ttc gcc tta tgc aag caa ttg aag aac	1847
Gly His Ile Ala Leu Thr Asp Phe Gly Leu Cys Lys Gln Leu Lys Asn	
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aag atg gat ttg att caa ggt gtg cct caa gtc att aca caa gaa tac	1895
Lys Met Asp Leu Ile Gln Gly Val Pro Gln Val Ile Thr Gln Glu Tyr	
400 405 410	
ctc gcc cct gaa atg gta atg caa aag ccc tat gcc atg gct gcc gac	1943
Leu Ala Pro Glu Met Val Met Gln Lys Pro Tyr Gly Met Ala Ala Asp	
415 420 425 430	
tgg tgg agt ctc ggt gtt ttg atg ttt gag ctg ttg act gga tct cct	1991
Trp Trp Ser Leu Gly Val Leu Met Phe Glu Leu Leu Thr Gly Ser Pro	
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Pro Phe His Ser Val Glu Gln Gly Glu Leu Phe Arg Gln Ile Leu Glu	
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Ala Pro Ile Lys Phe Pro Ala Gly Gly Cys Ile Thr Glu Glu Ala Lys	
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Asp Phe Ile Cys Gln Leu Leu Glu Arg Asp Pro Ala Lys Arg Leu Gly	
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Ser His Gly Asp Val Ala Gln Val Lys Ala His Pro Phe Phe Lys Asp	
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Leu Asn Trp Asp Val Val Tyr Lys Lys Gln Met Gln Leu Pro Phe Val	
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Pro Glu Val Glu Glu Gln Leu Arg Glu Glu Ala Ile Ala Ala Ala Ala	
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Ala Ile Ser Ile Pro Val Thr Asn Ser Lys Thr Glu Ser Thr Asn Ala	
545 550 555	
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Asn Val Met Pro Val Ala Asp Gln Ser Lys Phe Lys Gly Phe Ser Tyr	

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att cgt gaa gat gtc atg gca aag aag ggc gag cat cgt ctg ggt gtc 2423  
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<212> PRT

<213> Mucor circinelloides

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 Ser Lys Lys Pro Glu Ala Ala Ala Ala Ala Thr Ala Pro Asn Ala  
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 65 70 75 80  
 Glu Lys Ala Thr Ser Gln Leu Glu Ile Asn Val Val Glu Ala Arg Asn  
 85 90 95  
 Leu Thr Ile Ala Asp Ala Arg Lys Ala Asp Thr Tyr Cys Ile Val His  
 100 105 110  
 Tyr Glu Gly Asn Thr Thr Ser Thr Leu Asp Lys Val Asp Asp Gly Ile  
 115 120 125  
 Leu Pro Ser Thr Pro Leu Val Ile Lys Ser Gln Val Ala Ser Gly Ala  
 130 135 140  
 Phe Lys Ala Phe Glu Ile Met Met Ser Ala Ser Ser Pro Lys Trp Met  
 145 150 155 160  
 His Arg Val Asn Phe Asp Val Thr Ala Gly Asn Lys Glu Ile Thr Val  
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 Phe Val Tyr Asp Arg Gly Asn Lys Leu Pro Asn Gly Glu Asp Arg Phe  
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 Glu Leu Ile Phe Pro Leu His Gly Arg Pro Asp Asp Asp Gln Glu Val  
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 Thr Gly Asp Val Arg Leu Gln Val Thr Phe Ile Asp Pro Lys Lys Ala  
 225 230 235 240  
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 245 250 255  
 Ser Val Gly Lys Val Tyr Glu Val Ile Lys Arg Asp Ser Gly Arg Thr  
 260 265 270  
 Tyr Ala Met Lys Val Leu Ser Lys Arg Leu Leu Leu Ala Glu Asn Glu  
 275 280 285  
 Val Asp Thr Ala Phe Asn Glu Arg Asn Val Leu Val Gln Ser Leu Ser  
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Ser Pro Phe Ile Ala Asn Leu Lys Tyr Ser Phe Gln Thr Thr Asn His  
 305 310 315 320  
 Leu Phe Leu Val Met Asp Tyr Phe Pro Gly Glu Leu Phe Asp Phe  
 325 330 335  
 Leu Glu Arg Glu Arg Cys Leu Ser Glu Lys Arg Cys Gln Phe Phe Ala  
 340 345 350  
 Ala Glu Ile Val Cys Ala Phe Asp Asn Ile His Ala Arg Asn Ile Val  
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 Tyr Arg Asn Leu Lys Pro Glu Ser Ile Leu Leu Asp Ala His Gly His  
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 Ile Ala Leu Thr Asp Phe Gly Leu Cys Lys Gln Leu Lys Asn Lys Met  
 385 390 395 400  
 Asp Leu Ile Gln Gly Val Pro Gln Val Ile Thr Gln Glu Tyr Leu Ala  
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 Pro Glu Met Val Met Gln Lys Pro Tyr Gly Met Ala Ala Asp Trp Trp  
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 Ser Leu Gly Val Leu Met Phe Glu Leu Leu Thr Gly Ser Pro Pro Phe  
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 515 520 525  
 Val Glu Glu Gln Leu Arg Glu Glu Ala Ile Ala Ala Ala Ala Ile  
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 545 550 555 560  
 Met Pro Val Ala Asp Gln Ser Lys Phe Lys Gly Phe Ser Tyr Ile Arg  
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 caacaagagc cattaacgty gacagatttg cccttttgtt agtactcaaa ttagtcaagt 180  
 gatagactca cacactcaaca ctcacacaaa cctctagatg aagatccctc tctcatgatg 240  
 acaccaacta caccatctat atttacagct aataacaaca acccctatga tatccctctc 300  
 tctgctctaa atgctacaca caccgcatct actacacata ctactaatac acaaatcata 360  
 tctgcccgaag cactgcgaat tggtacctgg aagagaatga catttgaacc caatgaacctc 420  
 tcatgccatg tcatagaga cagcaaaactc ttacagctgt gcatccaaga cggattttcc 480  
 aagttcaaaa tgggaattccc acaagaattt gtgcaatcca tcaagctatc acccttaaca 540  
 agtcgacctg gctgggcaga ttggagatga atgtactatc tactcaaac atctgtttct 600  
 acatggagac gccgcaaca agctggatto aatgccgcga ctacactgaa gcagaagcagg 660  
 cttccatcat gccctgcac caactagacy gccctgcact tgcattaaag gcagaactag 720



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aatccctctc taaggaaaac gactatctag ctaccatcat tcattaattt gcataatcatt 780
gattggtgctg cctgattaaa attgtgtaat ataaaataacc atgttgacct ctcccctccc 840
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<210> 14
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<213> Mucor circinelloides

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cttgggtcgtc cttggtggca taaattggaa aaactggggt ttcctgtcat aagggtcccat 180
tttccttgga aagctctaaa tcgaactgact tttttccaat gaggaaagcc tggaggagggt 240
cgacttggtat cacaacaagg ttgcttatga aatcaacaga gtcacatccc gtctaaaacc 300
cagtttggtat ccgttttctt cgctctctac tgtgggtgctg aggatttgggt ataaaaagga 360
ctagattctc cacaacaatt tccatttttt ccttcattat cattcaataa tactgtaaa 419

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<220>
<223> Description of Artificial Sequence:
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<400> 15
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<210> 16
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<212> DNA
<213> Artificial Sequence

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<220>
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        oligonucleotide primer

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<210> 17
<211> 36
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence:
        oligonucleotide primer

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<400> 17
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<210> 18  
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<212> DNA  
<213> Artificial Sequence  
  
<220>  
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<400> 18  
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<210> 19  
<211> 21  
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